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Remarks

The claims have been amended to provide further clarification and to provide adequate coverage for Applicants' contribution to the art. Claim 21 has been canceled. Figures 7A and 7B have been amended to conform them to the remainder of the specification. The amendments are clearly supported by the original disclosure, particularly at original paragraphs [89] and [80], and the original Figures.

Reconsideration of the present application in view of the foregoing amendments and the following remarks is respectfully requested.

The present invention provides an apparatus and method which can accumulate different types of individual articles. Generally stated, the apparatus includes a delivery device which provides an initial-plurality of an initial-type of individual articles, and at least a first-accumulator mechanism which is automated to provide a first-plurality of a first-type of individual articles. The first-type of articles differ from the initial-type of articles, and the first accumulator mechanism includes a first metering drum. At least a first-transport-device moves the first-plurality of articles to a first packing location; and an automated assembly mechanism is configured to operatively combine the first-plurality of articles with the initial-plurality of articles. In a method aspect, a method for accumulating different types of individual articles includes delivering an initial-plurality of an initial-type of individual articles, and automating a first-accumulator to provide a first-plurality of a first-type of individual articles. The first-type of articles differs from the initial-type of articles, and the automating of the first-accumulator includes delivering the first-type of individual articles with a rotatable metering drum. The first-plurality of articles are moved to a first packing location and operatively combined with the initial-plurality of articles by employing an automated assembly mechanism. In particular aspects, the metering drum is tilted to move the articles down stream through the metering drum from an entry end to an exit end; and the first-accumulator includes a stationary plate member located operatively adjacent the exit end of the first metering drum, and positioned relatively downstream from the metering drum to help prevent articles from falling out from the bottom-side of the drum while allowing the drum to rotate past the stationary plate. Further aspects of the invention are set forth in the specification and claims.

Claims 26 - 28 have been alleged to be actionable under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. This action is respectfully traversed to the extent that it may apply to the currently presented claims.

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With regard to claim 26, Figures 7A and 7B have been amended to include the reference numeral --72--, which is already employed in the original description to designate an "end article".

With regard to claim 27, a disclosure of how the end articles are identified includes the disclosure pertaining to the indicator marker 76 at paragraph [113] and original FIG. 7; the article counting sensor 78 at paragraph [157] and original FIG. 15; and the procedure described at original paragraphs [163] – [168].

With regard to claim 28, a disclosure of how the datum is identified includes the disclosure pertaining to the indicator marker 76 at paragraph [113] and original FIG. 7; and the indicator sensor 60 at paragraph [168] and original FIG. 12.

In view of the above, it is submitted that the specification and claims are sufficient to meet the requirement of 35 U.S.C. § 112. Accordingly, reconsideration and withdrawal of the Examiner's actions under 35 U.S.C. § 112, second paragraph, are respectfully requested.

Claims 1-3, 11-13 and 21-25 have been alleged to be unpatentable under 35 U.S.C. § 103 over U.S. Patent 6,658,813 to Clay (Clay) in view of U.S. Patent 5,771,658 to Olson et al. (Olson) and U.S. Reissue 37,405 to Shirodera (Shirodera). This rejection is respectfully traversed to the extent that it may apply to the currently presented claims.

Clay discloses combined packages including a plurality of complementary containers. A first such container is a first generally rectanguloidal container that contains a first item and a second such container is a second generally rectanguloidal container that contains a second item that is different from and complementary to the first item. A packaging material at least partially surrounds each of the containers, thus holding the container in mutual abutment. A combined package can also include an adhesive between the containers that holds a face of the first container and a face of the second container in mutual abutment. To facilitate palletizing the combined packages, the overall shape of the combined package can be generally rectanguloidal. The first container can have a plurality of faces, each of which is generally coplanar with a respective face of the second container. Apparatus and methods for manufacturing such combined packages are also disclosed.

Olson discloses a packaging apparatus comprising a first infeeder supplying a first stream of articles; a second infeeder supplying a second stream of articles; and a selector having a plurality of spaced flight bars intersecting the first and second article streams at a predetermined angle. The flight bars form a stream of spaced, stacked article groups, each the stacked article group comprising a lower and an upper article subgroup. In a preferred embodiment, the continuous apparatus for forming and packaging stacked article groups comprises

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- (a) a first article infeeder for supplying a first stream of articles in a first travel path;
- (b) a second article infeeder for supplying a second stream of articles in a second travel path;
- (c) an article group selector having a longitudinal third travel path intersecting the first and second article infeeder travel paths at an equivalent angle, the selector having a plurality of spaced, transversely oriented and fixed flight bars intersecting the first and second article streams, the flight bars forming a stream of spaced, stacked article groups, each the stacked article group comprising a lower and an upper article subgroup;
- (d) means to deposit a divider member between the upper and lower article subgroups;
- (e) a carton supplier having a longitudinal fourth travel path parallel to the selector travel path, the carton supplier forming a stream of cartons with open ends facing the article groups on the selector; and
- (f) a continuous side loading mechanism having a plurality of loader heads fixed at spaced intervals on endless means disposed about a plurality of drive/idler means, the loader heads being synchronized to contact and move a stacked article group on the selector to a carton on the carton supplier, the loader heads, endless means and drive/idler means being constructed and arranged to form a sloping face whereby the loader heads approach the stacked article groups at an angle and continuously contact the stacked article groups while moving transversely and longitudinally.

Shirodera discloses a parts feeder for conveying a succession of parts in a common posture, includes: a rotary drum rotatable about its substantially horizontal axis of rotation and having on its inner circumferential wall surface a plurality of radial plates circumferentially spaced at predetermined distances; a chute in the form of an elongated plate substantially horizontally extending from an inside to an outside of the rotary drum through an outlet and having a guide portion along its upper edge; a vibrator supporting the chute for vibrating the chute longitudinally; a remover disposed adjacent to the guide portion for removing any of the parts if it is abnormal in posture while being conveyed on the guide portion of the chute; and the guide portion having a parts-supporting cross-sectional shape gradually varying from an inner end of the chute outwardly toward the outlet of the rotary drum.

A proper combination of Clay, Olson and Shirodera, however, does not disclose or suggest an apparatus or method in which a first accumulator mechanism includes a rotatable metering drum with the configurations called for by Applicants' currently presented claims. To the contrary,

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Shirodera at Col. 3, lines 36-52 states

The rotary drum 10 is in the form of a cylinder having at one end a bottom plate 11 and at the other end a ring-shape inner flange 12. The rotary drum 10 has on it inside wall a plurality of plates 13 extending radially toward and parallel to its axis of rotation and spaced circumferentially from one another at a predetermined angular distance. Each of the radial plates 13 is a rectangular plate having a pair of opposite short sides, one of which is fixed to the bottom plate 11 and the other left free. The rotary drum 10 is rotatably arranged so as to be inclined by a predetermined angle with respect to the horizontal in such a manner that the side of the bottom plate 11 is at a lower side and the side of the inner flange 12 is at an upper side. With the rotary drum 10 thus inclined, the locking members 2 inside the rotary drum 10 come together to the side of the bottom plate 11 by themselves so that an adequate quantity of the locking members 2 to be fed can be secured by the individual radial plate 13. (emphasis added)

Thus, Shirodera teaches that the bottom plate 11 and inner flange 12 are part of the rotary drum 10, and that the bottom plate and flange rotate with the drum. Additionally, the drum taught by Shirodera is tilted to move the locking members 2 away from the exit of the drum, and has its radial plates 13 spaced away from the exit end of the drum. Accordingly, the arrangements taught by a proper combination of Clay, Olson and Shirodera do not disclose or suggest a configuration wherein the metering drum is tilted to move the articles down stream through the metering drum from an entry end and out of an oppositely located exit end, as called for by the currently presented claims. A proper combination of Clay, Olson and Shirodera also does not teach a configuration wherein the first-accumulator includes a stationary plate member located operatively adjacent the exit end of the metering drum, and positioned relatively downstream from the metering drum to help prevent articles from falling out from the bottom-side of the drum while allowing the drum to rotate past the stationary plate; as called for by the claimed invention.

As a result, the arrangements taught by a proper combination of Clay, Olson and Shirodera are less able to provide a desired control of the flow of articles. In contrast, the accumulation system called for by Applicants' presently claimed invention can better provide a more effectively controlled article feed. The method and apparatus of the invention can automatically break down a large quantity of loose articles to substantially eliminate the need for manually feeding by an operator. For example, see Applicants' original disclosure at paragraph [75].

A proper combination of Clay, Olson and Shirodera also fails to teach an arrangement having at least one lug member in the configurations called for by particular claims of Applicants. As a result, the arrangements taught by Clay, Olson and Shirodera would be less able to provide a desired throughput capability and would be more susceptible to excessive clogging. For example, see Applicants' original disclosure at paragraphs [84] and [89].

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As recognized by the Examiner, a proper combination of Clay, Olson and Shirodera would fail to disclose or suggest an arrangement in which the automating of the first-accumulator further includes selectively indexing a movable carriage between a first carriage position and at least a second carriage position, thereby providing a selected face-alignment of a datum surface of said first-type of individual articles, as called for by Applicants' claimed invention. It is submitted that Clay, Olson and Shirodera also do not teach an arrangement in which the automating of the first-accumulator further includes identifying a presence of an appointed datum surface with respect to each end-article; and orienting each end-article so that both of the end-articles of the article-set have their datum surfaces positioned toward an interior of their corresponding article set, or both of the end-articles have their datum surfaces positioned toward an exterior of their corresponding article-set, as called for by Applicants' currently presented claims. As a result, the arrangements taught by Clay, Olson and Shirodera would be less able to provide a desired accumulation and assembly of different types of individual articles.

It is, therefore, readily apparent that none of Clay, Olson, Shirodera or any proper combination thereof would disclose or suggest the invention called for by Applicants' currently presented claims. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

Claims 7, 8, 10, 17, 19 and 20 have been alleged to be unpatentable under 35 U.S.C. § 103(a) over U.S. Patent 6,658,813 to Clay (Clay), U.S. Patent 5,771,658 to Olson et al. (Olson), and U.S. Reissue 37,405 to Shirodera (Shirodera), in view of U.S. Patent 3,311,216 to Jones (Jones). This rejection is respectfully traversed to the extent that it may apply to the currently presented claims.

Jones discloses an automatic egg handling apparatus which includes egg conveying means feeding random eggs to an egg accumulator means that includes distributor means that supplies eggs to grouping or row forming means. Downstream of the egg row forming means is row advancing means, egg row realignment means, and egg transfer means to depositor means.

Jones, however, fails to overcome the deficiencies of Clay, Olson and Shirodera. As a result, a proper combination of the cited references would still fail to teach the invention called for by Applicants' currently presented claims.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

The Examiner has withdrawn dependent claims 4-6 and 14-16 from consideration. In view of the amendments, however, it is submitted that these claims are also in form for allowance.

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For the reasons stated above, it is respectfully submitted that all of the currently presented claims are in form for allowance. Accordingly, reconsideration and withdrawal of the rejections, and allowance of the currently presented claims are earnestly solicited.

Please charge any prosecutorial fees which are due to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875.

The undersigned may be reached at: 920-721-2435.

Respectfully submitted,

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